



Broadcast Pix

Installation Planning Guide

Mica Live Video Production Systems

Mica 2000, 1000, 500 and Desktop



1000

Desktop



2000

500



Create Compelling Live Video

This Installation Planning Guide is intended to help plan the purchase and installation of the Broadcast Pix Mica 2000, Mica 1000, Mica 500 and Mica Desktop live video production systems.

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Introduction

The Broadcast Pix Mica™ 2000, 1000, 500 and Desktop live integrated production systems include a switcher, clip store, CG and device control.

Mica System

All Mica system is native 1080i and provide leadership integration, as it runs Broadcast Pix Fluent software.

The system has 8 HD/SD SDI video inputs, plus 1 SDI key cut input, plus 7 channels of clips, animations and graphics. Each SDI input self-detects for 1080i, 720p and SD, and has a frame synchronizer. They are 6 keys each of which has a DVE, and all 6 are standard on the 2000, and 3 are standard and 3 more are optional on the other Mica models. They are 6 HD/SD SDI outputs and 2 DVI outputs.



Mica System

The switcher is integrated with Mica's clip store, animation stores, graphics stores, Harris Inscribe Character Generator, Fluent View monitoring of video and files on up to two monitors, watch-folders to streamline file import, and file-based macros. Device control software is included for AJA KiPro recorders and ViewCast streamers, and may be optionally added for audio mixers, robotic cameras and video servers.

Four Models for Choices of Control Surface

The Mica Desktop is controlled with a mouse, or by adding a touch-screen. The Mica 500, 1000 and 2000 each add a control panel, as shown below.



Mica Desktop
Keyboard and mouse.
(monitors not included).



500 Control Panel



1000 Control Panel



2000 Control Panel

Standard Features

Switcher

Inputs:

8 SDI inputs for cameras and other external sources, plus 1 SDI key cut input, plus 7 channels of internal clips, animations and graphics.

Multi-Format, with Auto-Detect:

The SDI connectors enable any combination of video formats including: 1080i/59.94, 1080i/50, 720p/59.94, 720p/50, 486i (NTSC) and 576i (PAL). The system is selectable between 50 and 60 Hz, and between 16:9 and 4:3. When each SDI cable is connected, the switcher auto-detects its format, between 1080i, 720p and SD, and sets the format. Any input may be synchronous or asynchronous. The aspect ratio of each SD input can be adjusted to 4 different aspect treatments, Box, 14:9, Crop or None.

HD Processing:

1.5Gb/s HD, 10-bit 4-4-4, YPrPb processing.

Outputs:

6 SDI outputs, plus 2 DVI-D outputs will be activated. The 6 SDI outputs are 1080i program, 1080i cleanfeed, one pair of outputs for MD program and MD cleanfeed, and a second pair of outputs for MD preview and PowerAux. Each of these two output pairs can be set to 1080i, 720p or SD. Each DVI output is 1080i and may be set to mirror one of the SDI 1080i outputs.

PowerAux Output

The PowerAux output can output any source, and keys can be composited on top of it. It also processes the format. The background can be an external source, any internal source including the clip store, or program or preview. The PowerAux can maintain an output format (1080i, 720p or SD) and aspect ratio no matter what source it displays.

Up to 6 Keys:

On the Mica Desktop, 500 and 1000, 3 keyers are standard and 3 more are optional. On the Mica 2000 all 6 keys are standard. Each key has a 2 dimensional DVE, with reposition and cropping capabilities. One Chromakey/Luminance key is standard (upgradable to 8), with clip, gain, hue and spill suppression. An external CG can input one channel using video number 8 and the dedicated key cut input.

Tally:

The Mica switcher includes tally for each of its inputs with open collector outputs. For more see the tally page.

Clip Store, Graphics and CG

HD Clip Store:

1 channel clip store that supports compressed H.264 or ProRes video with audio, with auto start, stop, advance, plus mark points and looping capabilities. Play up to 30 hours (depending on compression settings) of .mov or .mp4 files, and play out image sequence animations files with key and audio. See file inputs section for more specifics.

HD Animation Stores:

1 or 2 animation store with auto start/stop/cut, mark points and looping capabilities, and audio. Play out a QuickTime animation file, or a folder of image sequence animations files with key. Create animations on the internal CG, or on an external system like Aftereffects, Apple, etc. Animations can be up to 800MB long compressed .tga or up to 100 frames uncompressed (including QT animations) with 1 animation store, which is how the system ships, or it can be set to 2 animation stores each with one half the capacity. See file inputs section for more specifics.

HD Still Stores:

2 channels of still store can support a wide-variety of still graphic formats from .TGA, .BMP, .GIF, .JPG, .PNG and .TIFF. Either 24 bit or 32 bit HD full screen graphics or a keyable graphic with an alpha channel

HD Character Generator:

2 channel HD character generator is a Harris® Inscribe® TitleMotion GS. Supports rolls/crawls, 2D & 3D animations, on-air graphic changes with .scribe editing, many pre-loaded templates and anti-aliased resolution of <16nS. The 2 channels of CG store can also hold graphics input to the system, like the still stores. A Chyron CG is optional.

Standard Features, Continued

Fluent Features

Fluent View:

Customizable Multi-View showing internal file inputs and external SDI inputs in motion with tally status and under monitor displays, plus view all keyer assignments and internal clip and graphic libraries. Supports one or two monitors. See the Fluent View section of this guide for more on it.

Fluent Macros:

Save and recall switcher panel snap shots and sequences. Macros remember not only setups, but the exact file names of clips, graphics and metadata (mark points, auto start/stop/rewind, loop and roll/crawl speed). Sequence macros can automate your production to quickly recall and play out pre-saved sequences including keys, DVEs, specific clips and graphics, camera moves, audio follow, etc. Fluent Macros can be created and executed from the control panel and/or from a Macro window on one of the systems' monitors.

Fluent Watch-folders:

Streamline the flow of clips and graphics files to the Mica Server from other systems like Final Cut and Photoshop. Add files to the show through standard network connections even when on-air.

Control Surface

Desktop Control:

On the Mica Desktop model the control surface is the desktop. Use a mouse or add a touch-screen monitor to control the system from its Fluent View display. All Mica systems, including the three following ones with control panels, may be controlled with desktop control as an alternative to using a panel.

Mica 500 Panel:

The Mica 500 model includes the Broadcast Pix 500 panel which has 9 direct input source buttons, 9 shifted input source buttons for a total of 18 map-able inputs. Program/preview architecture with classic next transition section, and a device control section. The contents of the sources, keys and device controls on the 500 panel are shown on the Fluent View display.

Mica 1000 Panel:

The Mica 1000 model includes the Broadcast Pix 1000 panel which has 9 direct input source buttons, 9 shifted input source buttons for a total of 18 map-able inputs. Program/preview architecture with classic next transition section, and a device control section. The 1000 panel features PixButtons, as described below.

Mica 2000 Panel :

The Mica 2000 model includes the Broadcast Pix 2000 panel which has 16 direct input source buttons, and a dedicated Fluent Macros section. Program/preview architecture with classic next transition section. Key priority controls on the control panel enable the layer priority of keys to be changed. The 2000 panel features PixButtons, as described below.

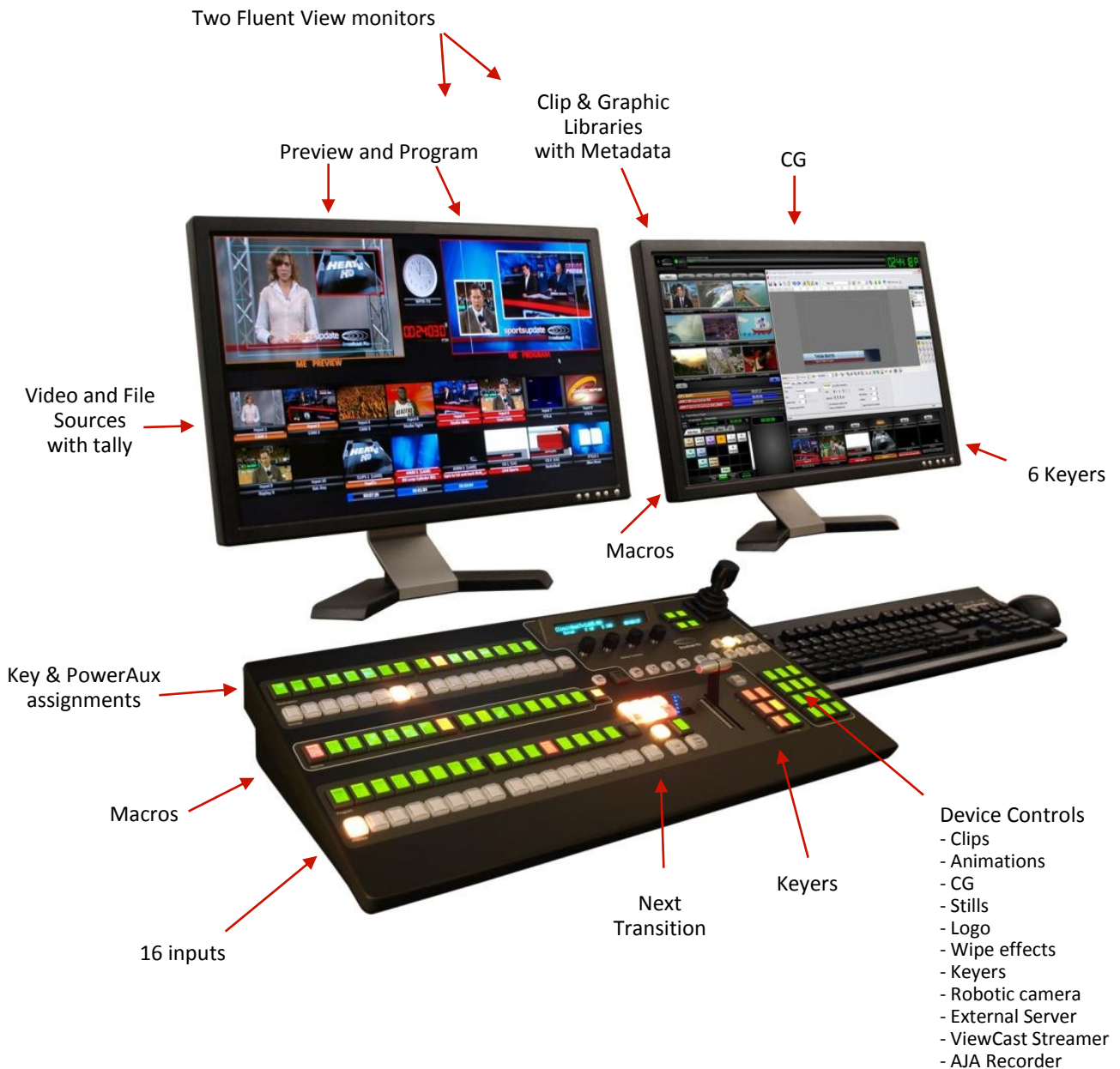
PixButtons™:

The 1000 and 2000 panel feature s unique push buttons that have built in displays that show an icon of the device selected (camera, clip, graphic, etc.), the channel number selected, and the exact file name selected of clips and graphics. Always know what content will appear; no other switcher has this.



Mica 2000 User Interface: Control Panel and Integrated Fluent View

The Mica 2000 control panel combines a 1M/E switcher layout, with a bank of device controls that can be assigned to control a wide variety of internal and external devices. The device controls include a PixPad of PixButtons, a Joystick, knobs, motion controls and a display. The monitors are an integral part of the user interface. The monitor layouts may be customized, as each element can be moved, resized and most can be replicated for team operation. A typical monitor configuration is shown below using the included dual monitor support .



Mica 1000 User Interface: Control Panel and Integrated Fluent View

The Mica 1000 control panel combines a 1M/E switcher layout, with a banks of device controls that can be assigned to control a wide variety of internal and external devices. The device controls include a PixPad of PixButtons, a Joystick, knobs, motion controls and a display. The monitors are an integral part of the user interface. The monitor layouts may be customized, as each element can be moved, resized and most can be replicated for team operation. A typical monitor configuration is shown below using the standard dual monitor support.



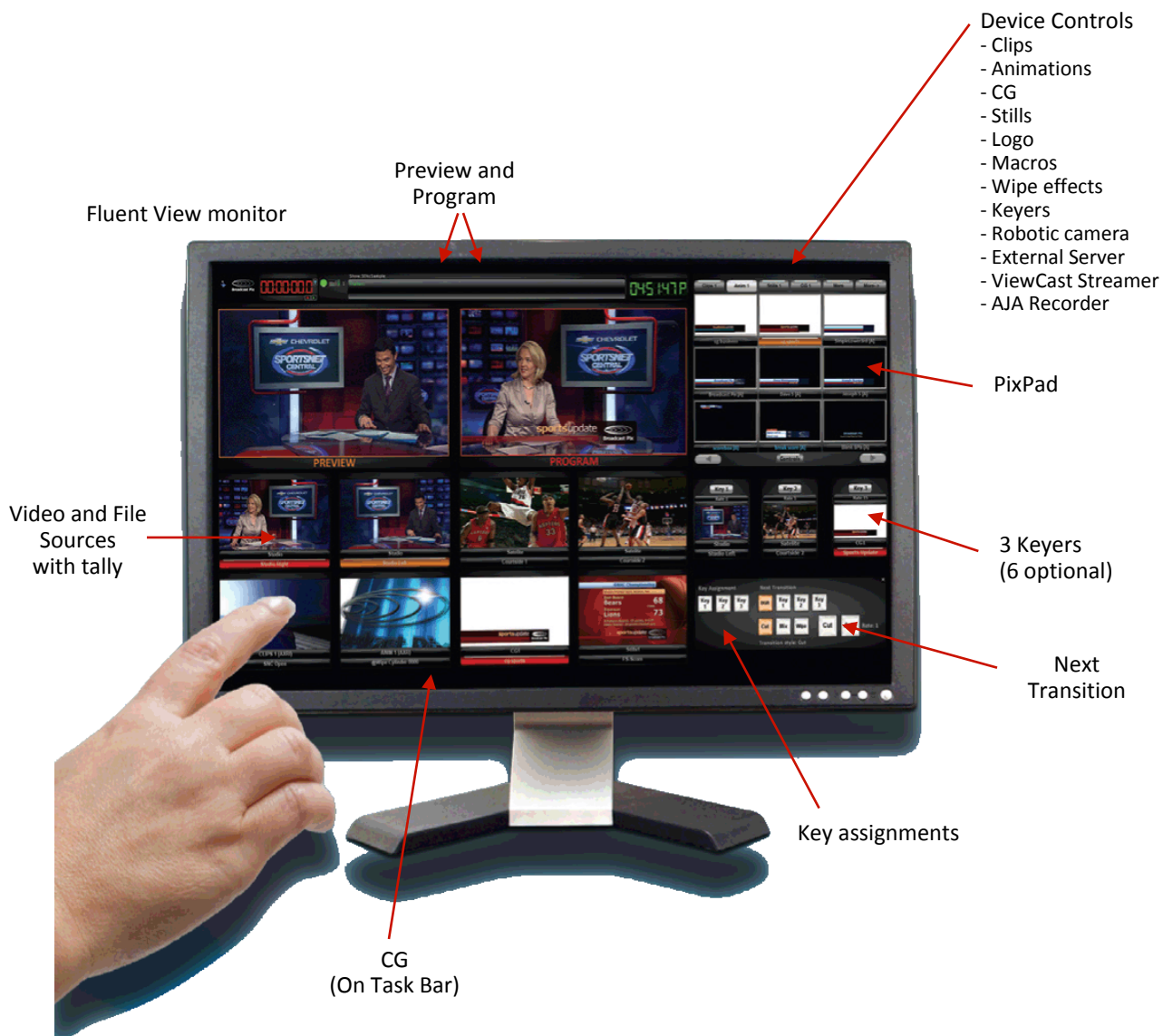
Mica 500 User Interface: Control Panel and Integrated Fluent View

The Mica 500 control panel combines a 1M/E switcher layout, with a banks of device controls that can be assigned to control a wide variety of internal and external devices. The device controls include a PixPad of PixButtons, a Joystick, knobs, motion controls and a display. The two Fluent View monitors are an integral part of the user interface. The monitor layouts may be customized, as each element can be moved, resized and most can be replicated for team operation. A typical monitor configuration is shown below using the standard dual monitor support.



Mica Desktop User Interface

The Mica Desktop uses the powerful, interactive Fluent View as its control surface, where all operations can be controlled. The operator can either use a mouse, or a touch-screen can be used. It is shown below in a one monitor configuration, but two monitors may be used as well.

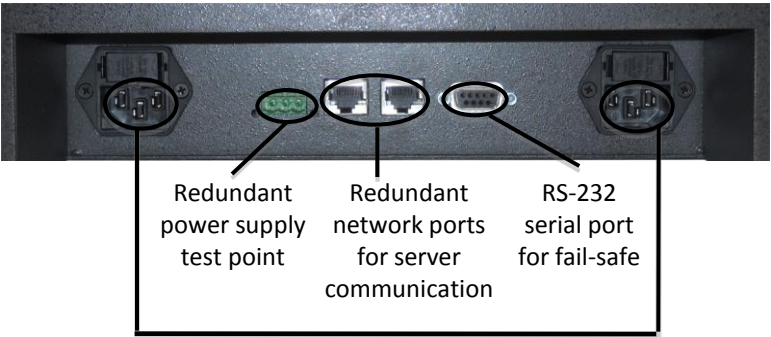


Mica 2000 Control Panel Specifications

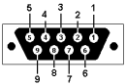
The control panel comes standard with two redundant internal power supplies that use standard IEC power cords (included). In addition, there are 2 redundant 100BASE-TX Category 5 network ports for communication to the server and an RS-232 serial connection for fail-safe control to the switcher.

One 10ft Cat 5 crossover network cable is included with each Mica 2000 system , in addition to a 10ft serial cable for fail-safe control. For custom wiring of the RS-232 serial cable, see pinout below..

Rear View of 2000 Control Panel



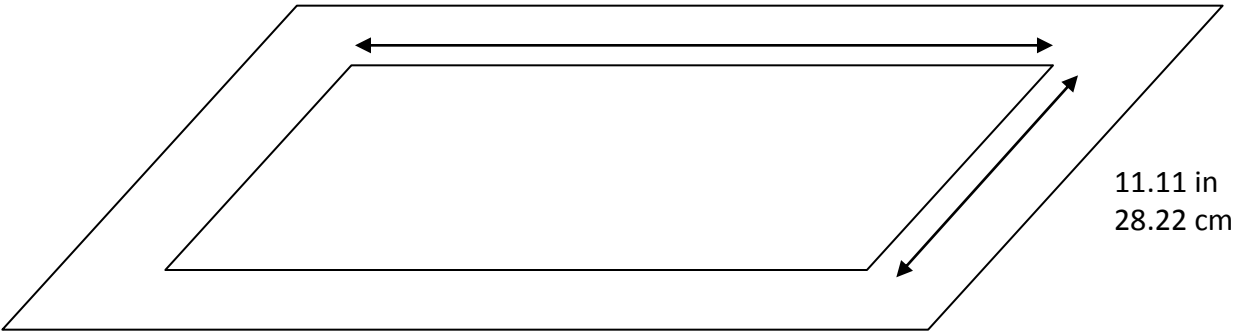
DP 9-pin Serial Cable Pinout:



Pin	Function
2	RXD
3	TXD
5	GND

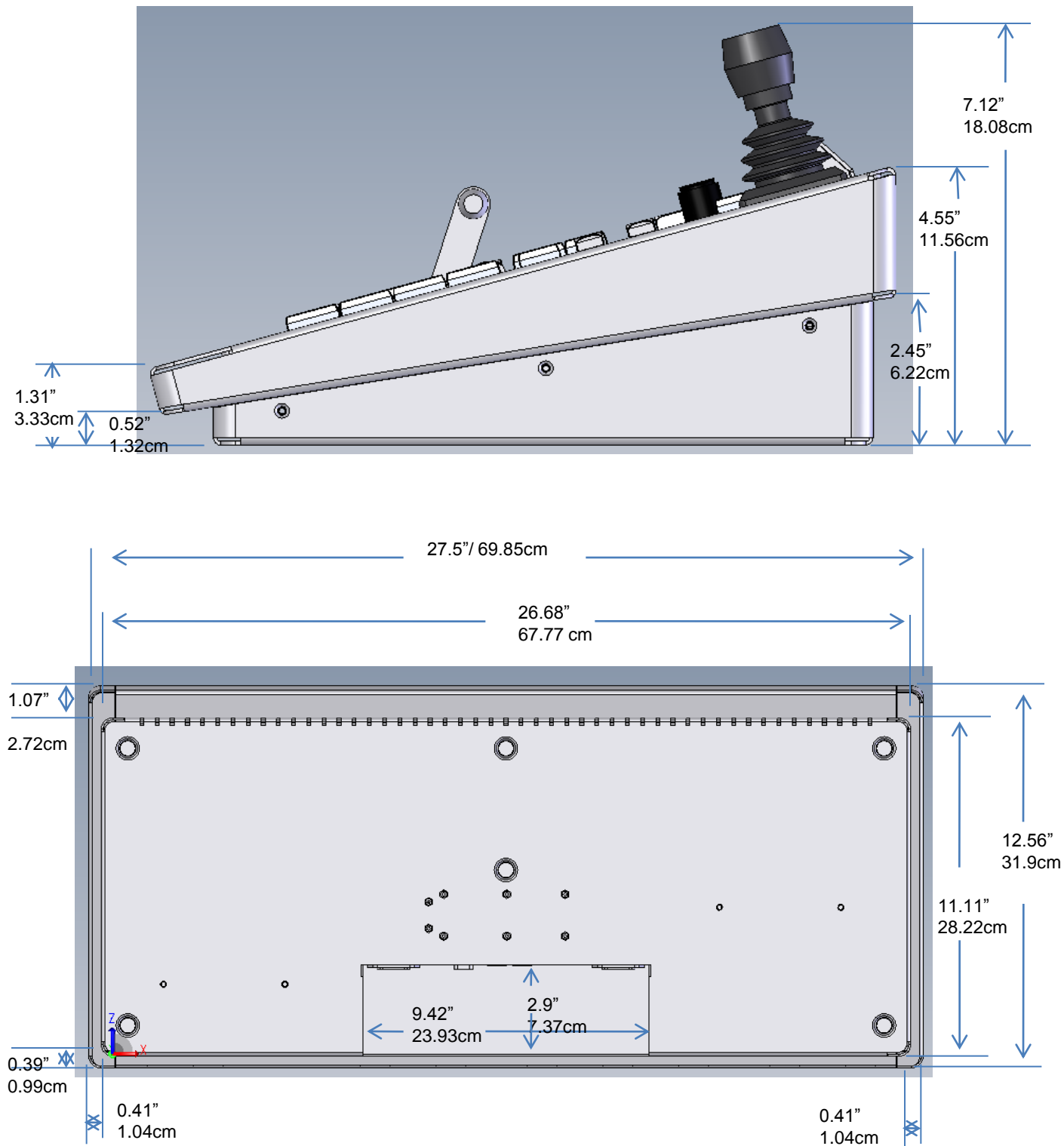
Cut-Out for 2000 Control Panel

26.68 in
67.77 cm



11.11 in
28.22 cm

Mica 2000 Control Panel Dimensions

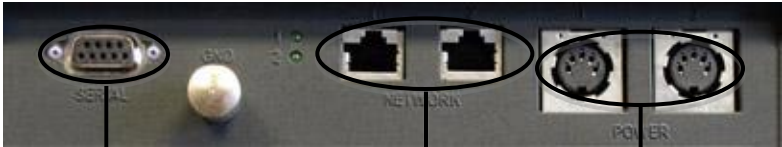


Mica 1000 Control Panel Specifications

The control panel comes standard with one external power supply (upgrade to dual redundant power) that uses standard IEC power cords (included). In addition, there are 2 redundant 100BASE-TX Category 5 network ports for communication to the server and an RS-232 serial connection for fail-safe control to the switcher.

One 10ft Cat 5 crossover network cable is included with each Mica 1000 system , in addition to a 10ft serial cable for fail-safe control. For custom wiring of the RS-232 serial cable, see pinout below..

Rear View of 1 M/E Control Panel

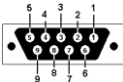


RS – 232
Serial port
for fail-safe control

Redundant
network ports
for server
communication

Power supplies
(Redundant supplies
optional)

DP 9-pin Serial Cable Pinout:



Pin	Function
2	RXD
3	TXD
5	GND

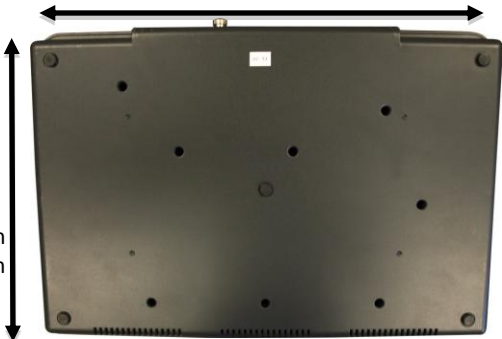
Top View



18.5 in
47 cm

12.5 in
31.8 cm

Bottom View



18.5 in
47 cm

12.5 in
31.8 cm

Mica 1000 Control Panel Dimensions

Side Views

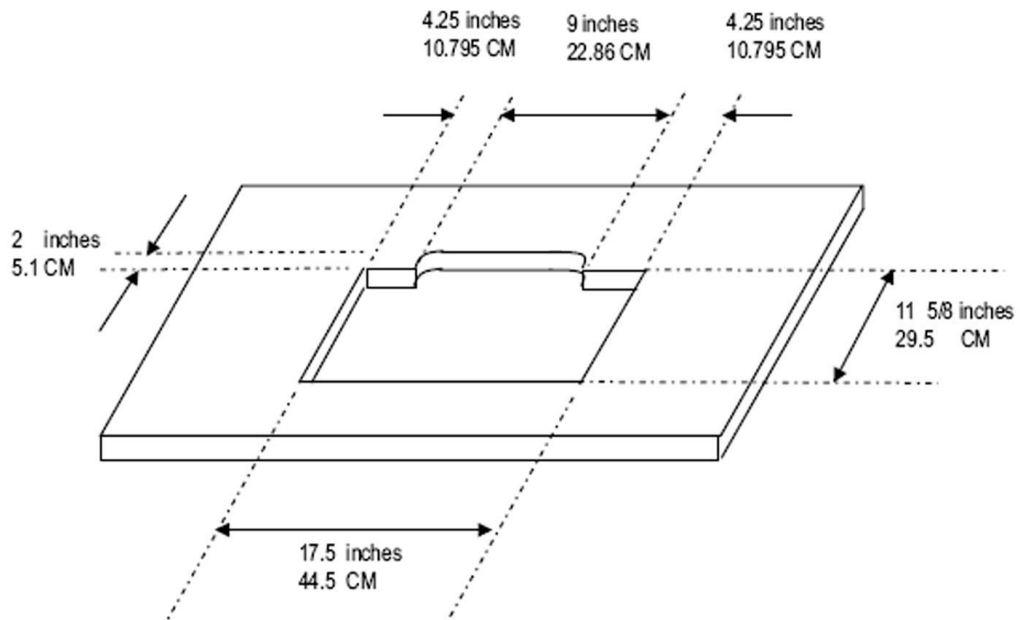
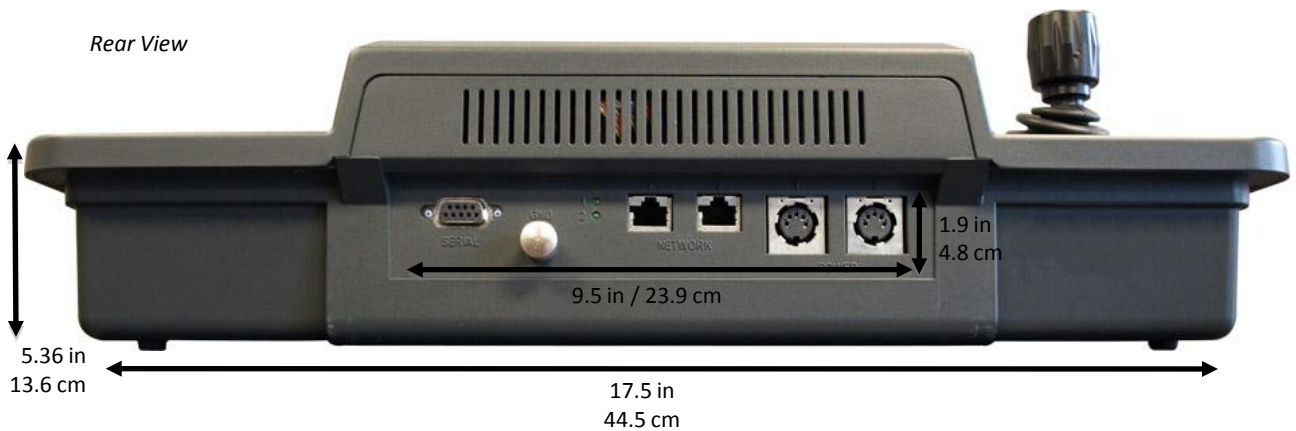


Tabletop installation of control panel:
Provides greater visibility of PixButtons.



Cut-out installation of control panel

Rear View



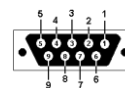
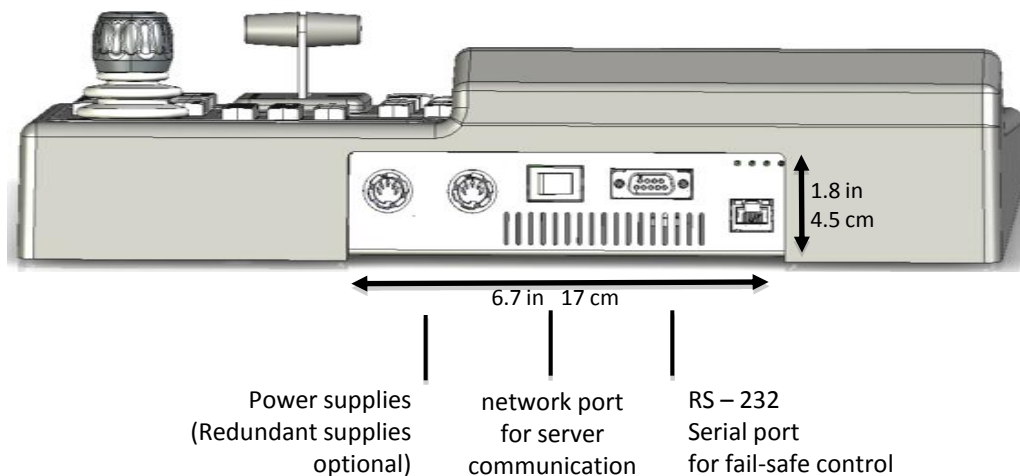
Dimensions for Control Panel

Mica 500 Control Panel Specifications

The control panel comes standard with one external power supply (upgrade to dual redundant power) that uses standard IEC power cords (included). In addition, there are 2 redundant 100BASE-TX Category 5 network ports for communication to the server and an RS-232 serial connection for fail-safe control to the switcher.

One 10ft Cat 5 crossover network cable is included with each Mica 500 system , in addition to a 10ft serial cable for fail-safe control. For custom wiring of the RS-232 serial cable, see pin-out below..

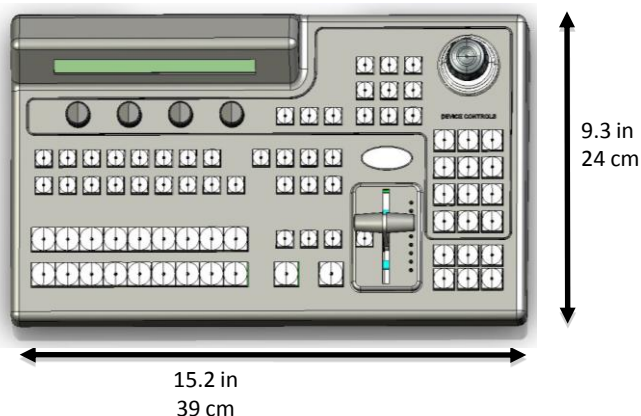
Rear View of 500 Control Panel



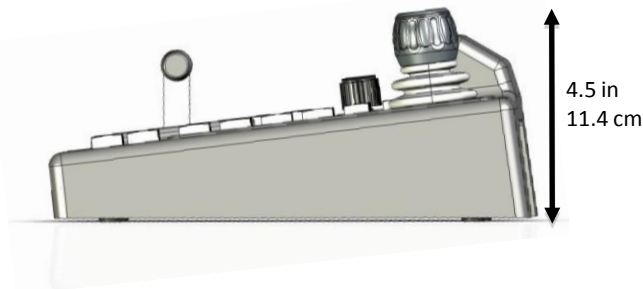
Pin	Function
2	RXD
3	TXD
5	GND

DP 9-pin Serial Cable Pinout:

Top View



Side View



Mica System

Input/output

The Mica System receives external video inputs via BNCs, plus they are 7 channels of file inputs from the internal clip, animation and graphic stores. The external inputs include 8 HD/SD SDI inputs and 1 SDI key cut input, each of which self-detects 1080i, 720p or SD and has a frame synchronizer. There are 6 HD/SD SDI outputs, plus 2 DVI-D outputs using an HDMI connector which can be set to mirror two of the 1080i SDI outputs.

While Mica has a powerful internal CG, some users wish to connect an external CG, with its video and key cut cables. The key fill cable should be connected to input 8 and the key cut cable to input K.

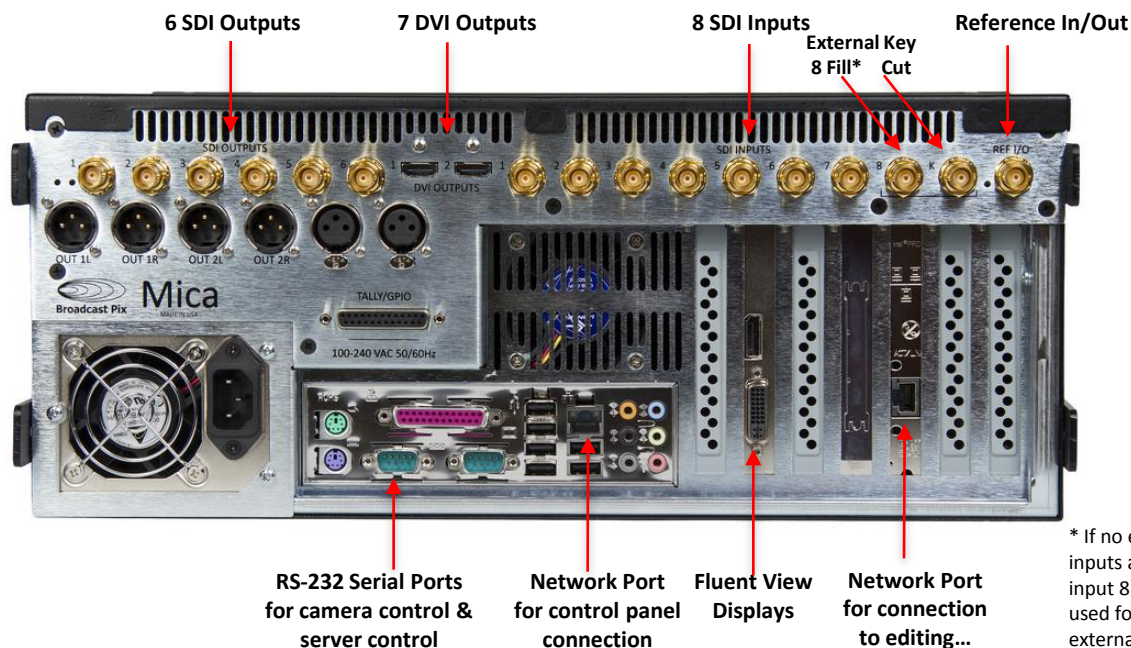
The Ref input accepts black burst or Tri-Level sync. If no ref is connected to it then the system runs from an internally generated sync, and the Ref connector outputs black.

Mica has two audio outputs, which are for the clip store and one of the animation stores.

System

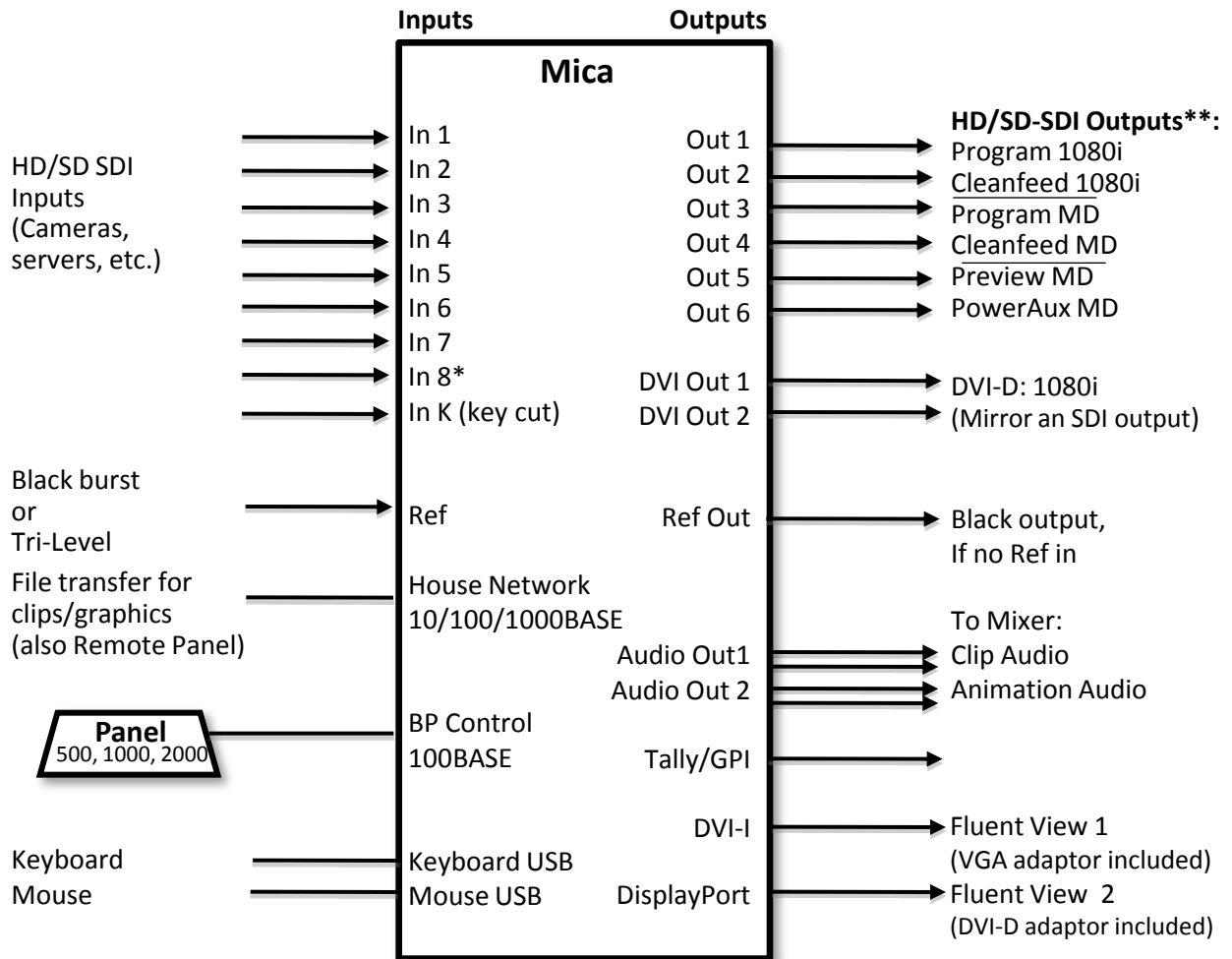
The switching is done on Broadcast Pix boards, which are connected to an Intel computer, which runs:

- Software: Windows XP for Embedded, Service Pack 3, and comes pre-installed with the appropriate software, including the BPSwitcher application from Broadcast Pix. (Applications from vendors other than Broadcast Pix should not be added to the system, unless approved by Broadcast Pix, or they will hurt system performance and invalidate the warranty.)
- Intel® Core™ 2 Quad 2.66 GHz processor
- 4 GB Ram memory
- 250 GB system hard drive (for applications and graphic storage), with back-up software
- Removable 250 GB video hard drives (for clip store storage)
- (1) DVD/CD R/W
- (2) 10/100/1000BASE-TX Ethernet ports (one used for private Broadcast Pix control panel)
- (2) front-mounted USB 2.0 ports
- (6) rear-mounted USB 2.0 ports
- (2) USB ports for keyboard and mouse



* If no external key inputs are used, input 8 may be used for another external input

Mica Wiring Diagram



* Use for key fill, if using an external keying device, otherwise it is input 8

** Each of the two pairs of MD outputs may be set to 1080i, 720p or SD.

File Inputs

One important way in which the Broadcast Pix Mica system stands out from other traditional switchers is its file-based architecture. Not only can the system support a wide-variety of live SDI video formats, it can also accept a wide-variety of standard graphic and video file formats.

A file is a graphic, clip or animation that is encapsulated in a computer file, such as a .tga graphic or a .mov QuickTime clip. It includes not only the content, but also the name of the file. Files are generally created from a computer/editing system like Apple Final Cut Pro, Adobe Premiere, Avid or an animation program like Artbeats or Digital Juice. The files are then sent over a 1 Gig network in either pre-production or during a production using Fluent Watch-Folders and stored internally in the Mica system. Files can also be created with the included Harris Inscribe CG, optional Chyron CG, as a CG or animation.

Accepted File Formats

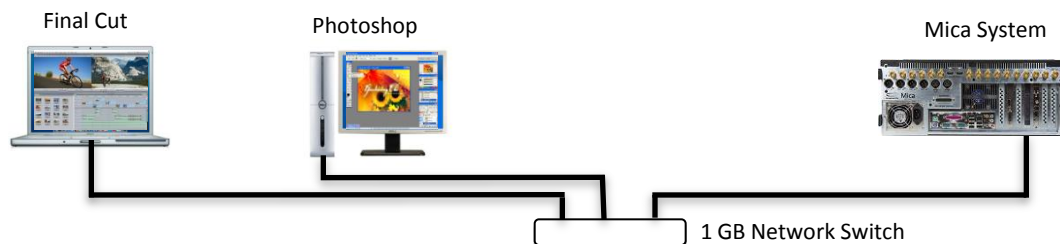
The following file formats can be played on the Mica system:

- HD Graphics Stores: 1920x1080, or 720p, or SD: .tga, .bmp, .jpg, .png, .gif, .tif, Inscribe's .scribe, of Chyron Lyric
- HD Animations Stores: a QuickTime animation file or a folders containing an image sequence of 1920x1080 files: .tga, .bmp, and .png. Capacity is up to 800MB long compressed .tga or up to 100 frames uncompressed (which includes QT animations) with 1 animation store, which is how the system ships, or it can be set to 2 animation stores each with one half the capacity. When set for 1 animation store, the second channel of the animation store may be used for single frame graphics.
- HD Clip Store: 1920x1080 files at 29.97 or 25 fps .mov or .mp4 files in H.264, or .mov in ProRes (PX, LT and 422/normal)

Fluent Watch-Folders

Fluent Watch-Folders greatly streamlines your live production workflow by enabling clips and graphics to be sent over a network from your favorite edit stations and graphics systems. For example, a Final Cut operator can send a clip into a Fluent Watch-Folder for the 6 o'clock news program, and it will automatically appear in the Mica system's Fluent Clip Store for the 6 o'clock news. Late breaking news can even flow into Watch-Folders during the middle of a live show. When it arrives the status bar on the Fluent View lets the operator know it has arrived, and it shows up on the PixPad on both the Fluent View and the control panel.

Typical Wiring for Watch-Folders



Virus Protection

Virus protection software is not installed in the system, as it does affect system performance. If the installation is in an environment where there is a lot of network activity than it is recommended that virus protection software be added, and turned off before each show. The AVG and Avast products have been tested by Broadcast Pix and work well, and are easy to turn off and on.

Fluent View

Every Broadcast Pix Mica system includes a customizable Fluent View to monitor all your internal and external sources, all keys, and preview and program for each M/E. Mica supports 2 monitors.

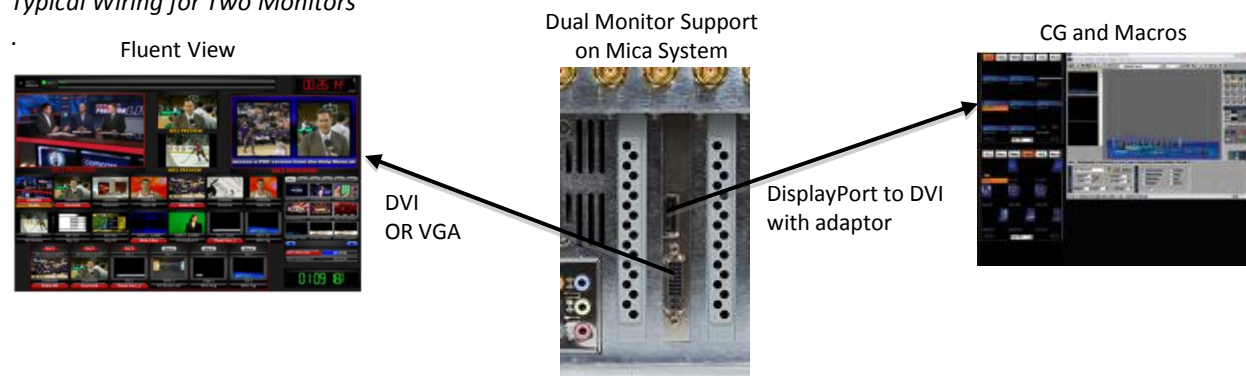
2 Connections: DVI-I and DisplayPort with DVI Adaptor

The standard 2 Fluent View support is through the system's graphics card, as shown below. It provides one DVI-D connector and one DisplayPort connector. A DisplayPort to DVI-D adaptor is included, as is a DVI-D to VGA adaptor. This standard output is through a dual-headed card where you can easily create custom layouts across two screens, in addition to using the factory default layouts. Custom layouts can then be saved and recalled.

Getting Started with a Default Fluent View

You may connect virtually any resolution monitor to the server, including: 1920x1080, 1366x768, 1680x1050 and 1280x1024. The Mica system will auto-detect the monitor size and launch a comprehensive default Fluent View on the primary monitor, which shows all inputs, outputs, keys and two PixPad libraries. The second monitor can be used for the CG and for Fluent Macro windows, as shown below.

Typical Wiring for Two Monitors



View Program, Preview,...

The Fluent View displays windows for 4 compositions, such as program and preview, clean feed or PowerAux.

View Sources

The 4 graphic inputs channels and 2 animation channels are displayed as still images. Up to 8 moving sources from cameras and other external sources and the internal clip store are monitored in full motion.

View Files and Keys

Unlike conventional multi-views, the Fluent View provides monitors of each keyer, and extensive file-based information. The PixPad corresponds and follows the one on the control panel to show libraries of clips, animations and graphics. File names and attributes are shown. The key windows also show attributes, such as whether a DVE has been applied.

Fluent View, Continued

Customizing the Fluent View

The Fluent View can be extensively customized. You can remove windows you do not use, rearrange the windows, resize them, and change the colors of the window frame and the background. You can make a duplicate copy of a window, like Program or a source, and put it on both monitors.

For example, you can rearrange the standard Fluent View across two large wall monitors. The customization can be done by going to the drop down menu, unlocking the Fluent View, and then just grabbing and resizing. Alignment and sizing tools are included. For more, see Fluent View Customization in the owners manual.

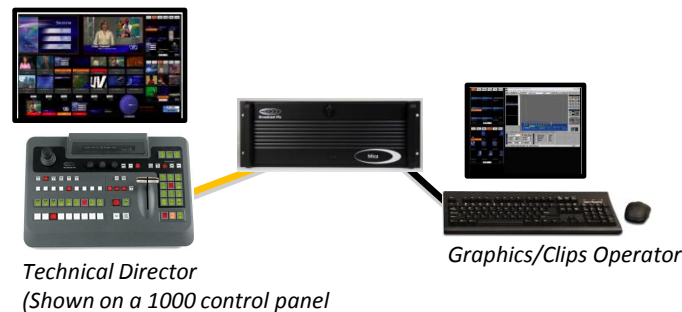


Team Operation

One of the unique features of all Broadcast Pix systems is control room operations are so integrated that compelling live video can be created by a minimal staff, even one person. A technical director can switch and control cameras, key on lower thirds, update guest graphics, change over-the-shoulder boxes, roll in opens and packages, plus trigger audio commands, all from one control panel. This tight interaction makes productions more efficient, and enables a solo operator to create a show that requires a team in a conventional studio.

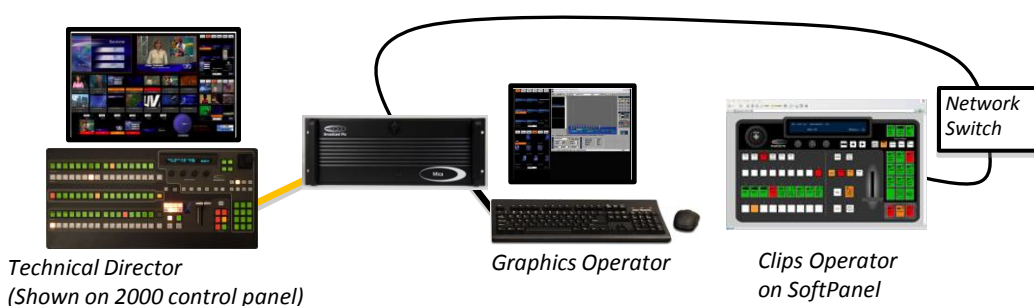
Two Person Operation

However, the Mica system is not limited to one person operation. There are times when in addition to having a complex switched production, multiple graphics and clips need to be updated and changed on the fly. The Mica system is highly scalable, and can easily accommodate multiple users. A common setup up for a Broadcast Pix studio is a technical director switching and calling the camera shots, plus a second operator changing graphics and clips as needed. Both users are controlling the same Broadcast Pix system, the technical director with the 2000, 1000 or 500 control panel or with a touch-screen on the Mica Desktop, and the graphics operator with a keyboard, mouse and dedicated graphics monitor.



SoftPanels for Larger Teams

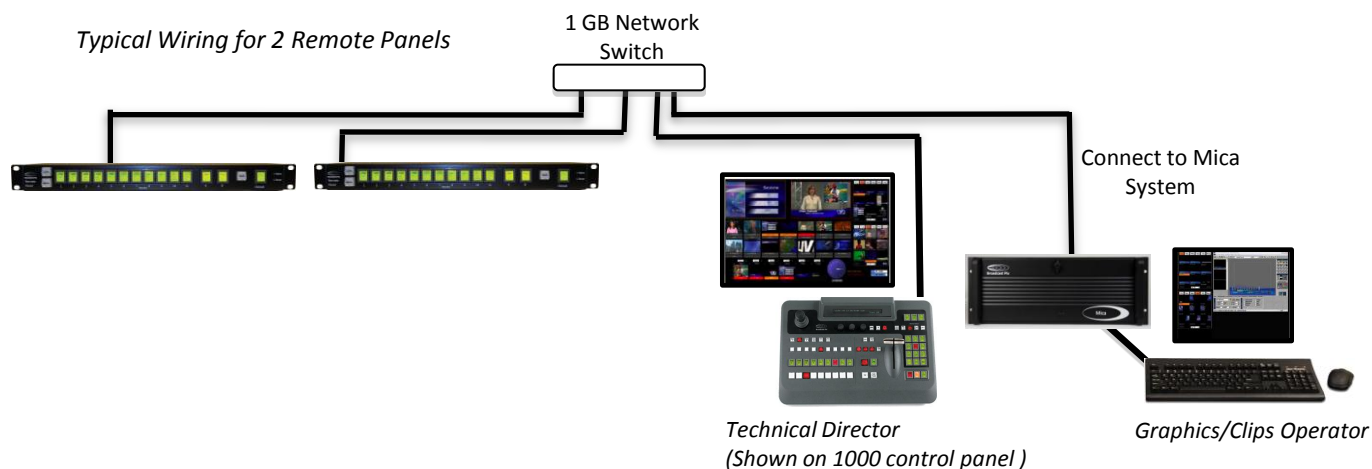
Through the use of SoftPanels, which are virtual control panels, users enter an IP address and have access to any part of the control panel to assist the director in various show needs. You may have as many SoftPanel licenses installed on your system as you wish, and they can easily be added on as an option. Each control panel/SoftPanel uses one license, the Mica comes with 3 licenses, but more may be beneficial. SoftPanels can be opened on a laptop or Android by using a wireless router. Larger teams can also use remote panels, and Apple apps as described on the following pages. Since SoftPanels are Flash-based, users can right-click and zoom into various parts of the control panel for a custom look, as shown below. This not only focuses the user on their section, but also limits access to other parts of the panel, that the director may not want anyone to control.



Team Operation, Continued

Adding Team Members with a Remote Panel – Option #110

1RU remote panel for controlling aux outputs and macros. Great for remotely changing an output, like program or PowerAux, or for remotely executing Fluent Macros. Connect to the network connector on the Mica System that is also used for connecting to the control panels, by adding a network switch, as shown below. In this case the control panel should also be connected to this switch, rather than use the cross over cable as this will streamline software updates.



Team Operation, Continued

Expand the Team with an iPhone or iPod

You can also add a team member on an iPhone or iPod Touch. For example, if the primary switcher operator has his or her hands full switching a complex production, they can have an assistant use an iPod to find the next graphic or clip. Since the iPod is wireless, it can be anywhere.

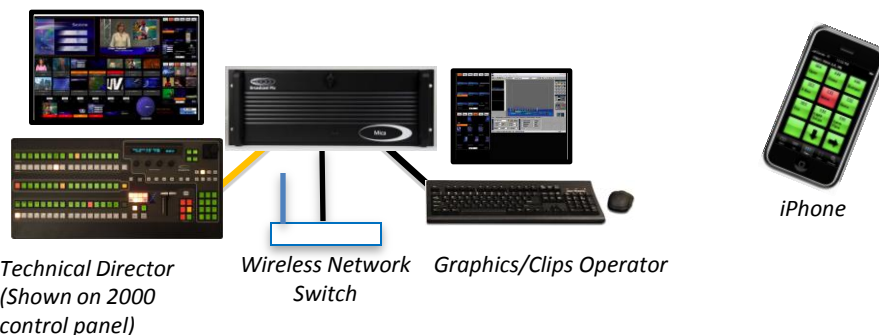
The iPixPad application replicates a Slate's PixPad, the bank of 12 buttons on the Broadcast Pix control panel that allows the user to fire off macro memories, as well as select clips and graphics. The iPixPad can also be used to augment control of a larger production by providing an additional operator, or even the director, with a wireless controller that can be used to run macros or select graphics or clips. Each Mica system has its own IP address, so iPixPad can control a specific system.

Installation: Go the Apple apps store and download the free iPixPad app from Broadcast Pix to your iPhone (or iPod Touch). Connect the Mica Content Server to a wireless router. On the iPhone start the iPixPad app, and enter the IP address for the Mica Server. For long production you may wish to attach a power cable to the iPhone.



iPixPad app

iPhone Wiring



iPixPanel app

Expand the Team with an iPixPanel on a iPad

The iPad is large enough to hold an entire Broadcast Pix 1 M/E panel. It is installed in the same way that the above iPhone app is, expect that the iPad app is not free, but has a small cost. It can be used to control anything a 1M/E panel can control except knob and joystick functions, and is handy for a wide variety of applications, from team members helping to using its wireless freedom of movement during set-up

Expand the Team with a SoftPanel on Android

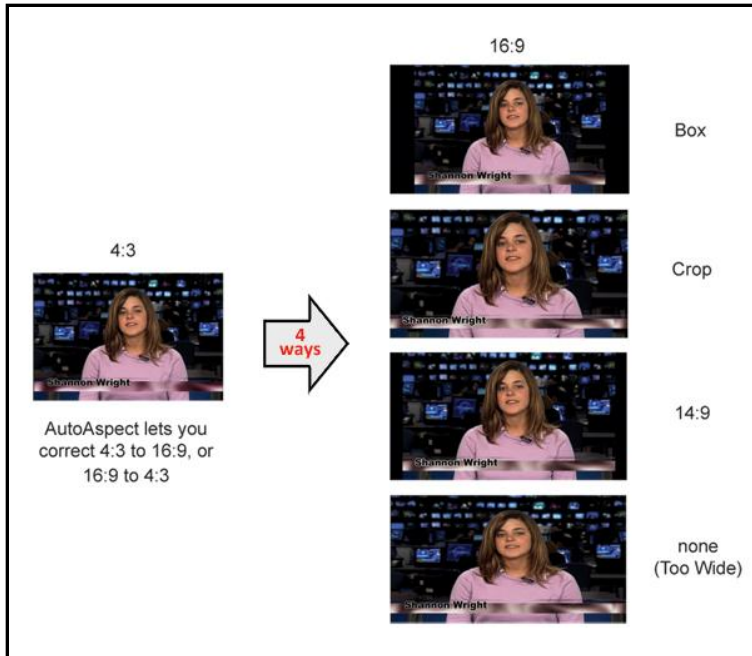
A standard SoftPanel can be opened on an Android.



AutoAspect™

Whether you are creating a widescreen 16:9 show, or a traditional 4:3 show, AutoAspect solves the many challenges of mixing 4:3 and 16:9 content in the same production. Now 16:9 and 4:3 inputs, clips and graphics can be used interchangeably and mixed together in the same live production, while maintaining the native aspect ratio of each element. Conventional switchers can only stretch video when crossing aspect ratios, causing people to look too wide or too thin. Mica enables each input to be set to one of 4 aspect treatments: Box, Crop, 14:9 or None (anamorphic). And each clip and graphic in the libraries can be separately treated in the same four ways.

AutoAspect Input Treatment

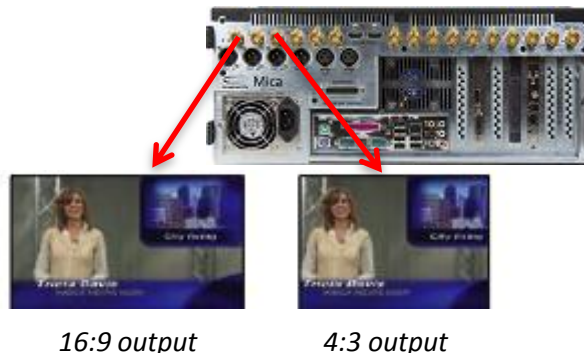


AutoAspect Controls



Simultaneous 16:9 and 4:3 Aspect Outputs

On Mica, you can also set each output for an aspect treatment, so you can for example output 16:9 and 4:3 versions of the same show. To set the output aspect, use the Video I/O set-up menu.



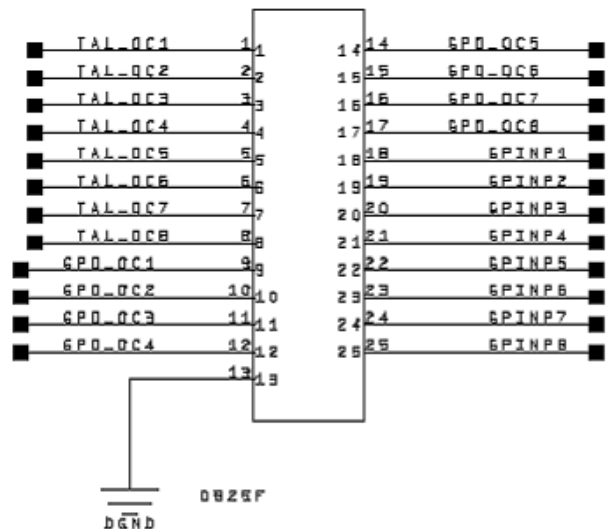
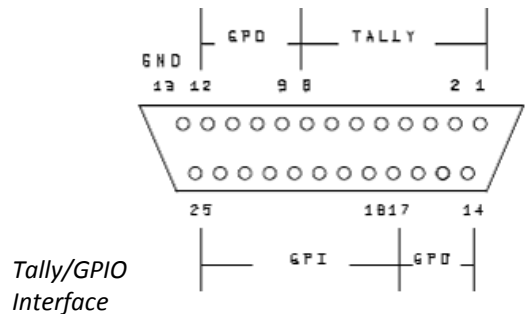
Tally

Standard Tally

The standard tally uses the Tally connector on the Mica System which is marked Tally /GPIO. These outputs are open collector driver circuits that can either sink current to ground or provide a TTL level logic interface.

Tally outputs 1-8 are on pins 1-8, Ground is on pin 13. They sink current to ground when active and have a weak pullup to +5V when off so they can either be used to turn on a light or activate a circuit by sinking current to ground or could be used in an environment that is looking for a 0 to + 5V logic level.

GPI and GPO connections are also on the Tally connector as shown.



Optional Tally

While standard tally will suffice in many studios, if you need to provide a stronger electric pulse to your cameras, then the following tally options should d be used:

#28 – Tally Box 8: Adds relay contacts to tally up to 8 sources. Connects to the server through a USB connection. Voltage needs to be supplied to the tally box from your camera controls units or other source for the tally to open and close the contact points. This option also supports up to 8 GPIs, useful when needing to trigger macros in the Broadcast Pix system from an external device.

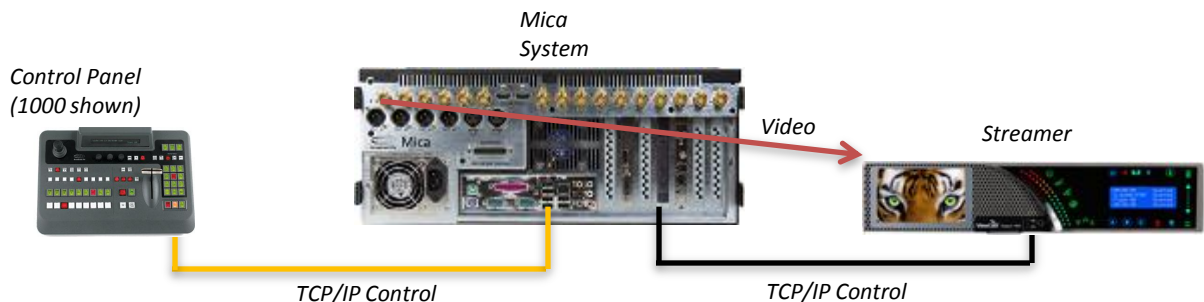


Control a Streaming Appliance

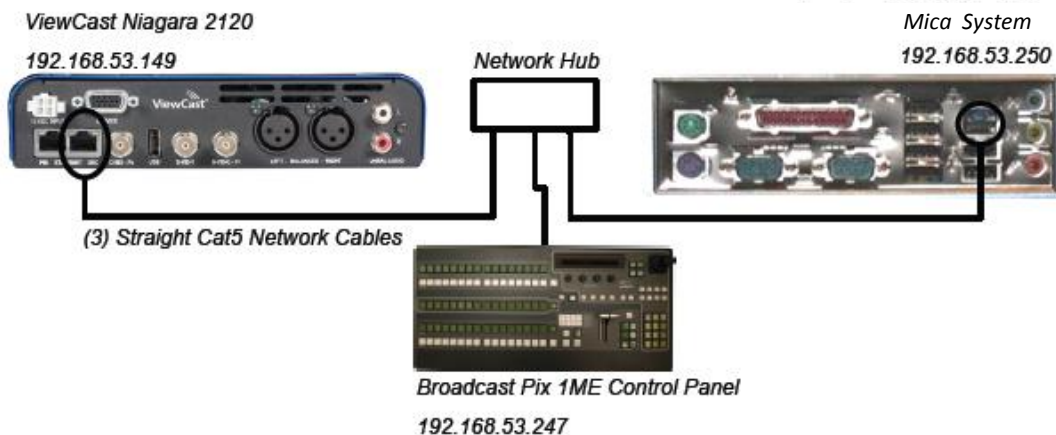
Streamer control:

Included software enables control of a ViewCast streamer from the Mica control panel. On the panel, select the streamer with the device controls, then select up to 12 different streaming groups (MPEG, Flash, AVI, Real, WM2, etc.). Each group name appears on the panel's PixButton. Start or stop each stream, and view status from the panel. Even integrate control with Fluent Macros. The control is over a TCP/IP network, so the streamer can be remote from Mica.

A simple installation is shown below.



The installation may also use a network hub, as shown below, which makes it possible to add network connections to various computers in the studio for bringing in file content via Fluent Watch-folders.

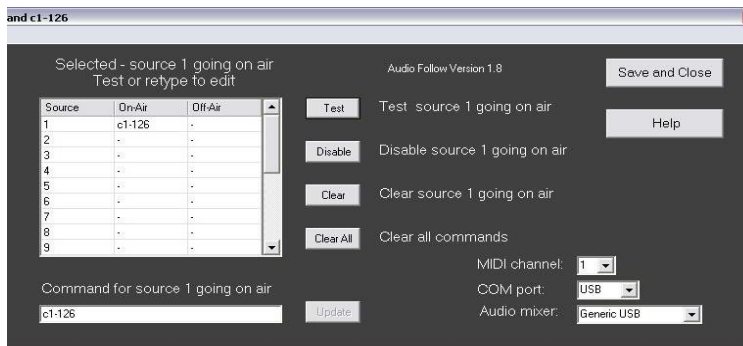


Audio-Follow-Video Option #880

The Broadcast Pix Mica system does not do any internal audio mixing, as powerful external audio mixers are cost effective and readily available, however any Mica system can remotely control external audio mixers through the MIDI (Musical Instrument Digital Interface) protocol. This method provides more control and options for the user, compared to conventional switchers that use the antiquated ESAM protocol, as MIDI works with many different types of audio mixers and is more powerful and affordable. Examples of controllable audio mixers are: Yamaha O1V96, DM2000, Mackie TT24, and Roland RSS M-400.

This option does not have to replace an audio operator, it can assist them. For example, when a clip from the internal Broadcast Pix clip store plays on air, it can automatically turn on the sliders for the clip store audio on the mixer, and when it goes off air the sliders turn off. Or, when an anchor on set is on air, it triggers a scene change to bring up his volume, adjust EQ settings and add some compression. All this is accomplished with the Audio-Follow-Video option from Broadcast Pix. For less demanding productions, when an audio operator is not desired, the audio follow option may be configured to completely take his place.

Broadcast Pix Audio-Follow Setup Window



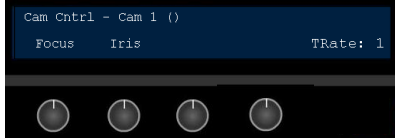
The Audio-Follow option includes a M-Audio MIDI to USB converter to connect your audio mixer to the Mica Content Server through the MIDI In & MIDI Out ports, as shown below. If desired, you may also use a straight USB cable, if your audio mixer accepts MIDI control over USB. Once connected, simply enter your parameters in the command grid and start switching. Since the Broadcast Pix Mica system is file based, these settings are saved on a show by show basis so every Broadcast Pix show that you produce can have unique Audio-Follow commands.




Sony Camera Control Option #800 (RS-232C)

In addition to remotely controlling audio mixers the Broadcast Pix Mica system can control robotic cameras through the Sony VISCA™ protocol, for the ultimate ‘one-man-band’ production. Examples of controllable cameras are: Sony BRC-300, BRCZ-330, BRCH-700, EVI-HD1 and many others.

The Broadcast Pix software can control up to 9 cameras, with 6 presets each, directly from the 2 M/E control panel. It uses the joystick to pan/tilt/zoom and knobs in the Device Control to adjust focus, iris and other settings. There is a total of 6 presets per Sony camera. Each camera, preset and menu settings appear directly on the PixButtons™ of the PixPad, as shown below, for ease of use and greater control.



4 Knobs for control of:
Focus, Iris and CCU Settings



3-Axis Joystick
Positions Camera:

- Left-right: pan
- Up-down: tilt
- Twist: zoom

Camera Select PixPad

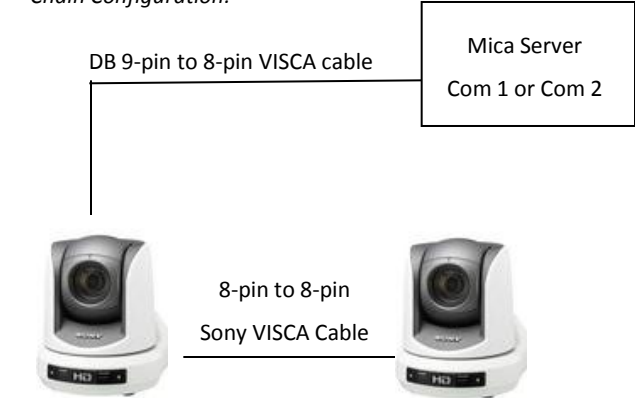
1	2	3
4	5	6
7	8	9

Sony Settings PixPad

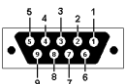

Update PSet	Set Cam Addr	One Push W Bal
Start Auto Focus	Start Auto Iris	Start Auto White
White Bal Inside	White Bal Outsid	White Bal A.T.W
	Cam Selct	

A typical installation for the Sony VISCA cameras uses an RS-232C daisy chain configuration, see below for example. Where a DB 9-pin to Mini Din 8-pin VISCA cable is used to connect the first camera to the content server’s communications port (COM 1 or COM 2) and the other cameras are looped through each other with a Mini Din 8-pin to Mini Din 8-pin VISCA cable through the VISCA In/Out ports. There is a maximum length of 15 meters (50 feet) when using an RS-232C configuration. A 10 foot test cable is included with the system when this option is purchased.

Sony VISCA RS-232C Daisy Chain Configuration:



Sony VISCA Mini Din 8-pin Male to DB 9-pin Female Pinout:



Pin	Function
1	DTR
2	DSR
3	TXD
4	GND
5	RXD
6	GND
7	n/a
8	n/a

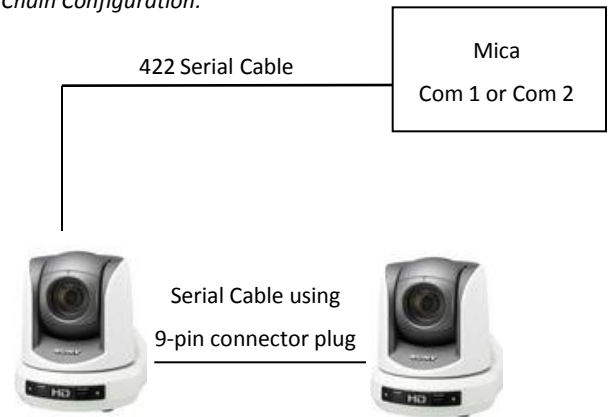
Pin	Function
6	DSR
4	DTR
2	RXD
5	GND
6	TXD
1	n/a
7	n/a
8	n/a
9	n/a

Sony Camera Control Option #811/814/818 (RS-422)

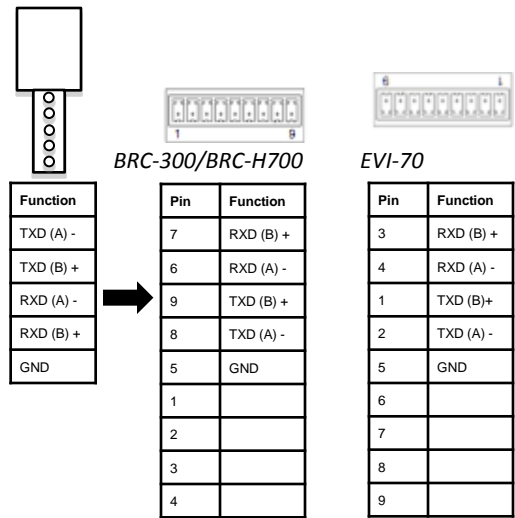
For installations needing longer runs you may also use an RS-422 configuration, which extends the maximum length to 1,200 meters (4,000 feet). Note, not all Sony VISCA cameras support RS-422 communication. When using an RS-422 connection, there are 3 configuration options, and depending on installation needs, you may connect cameras in a daisy chain, star or star/daisy chain combination.

The single camera or daisy chain configuration, (option # 811) includes a DB 9-pin RS-232 to screw terminal RS-422 converter, which plugs into the server in either COM 1 or COM 2. From the screw terminal you may connect your first camera using the 9-pin connector plug provided with the camera. From the same connector you may loop communication to the rest of your cameras. See below for wiring diagram.

Sony VISCA RS-422 Daisy Chain Configuration:

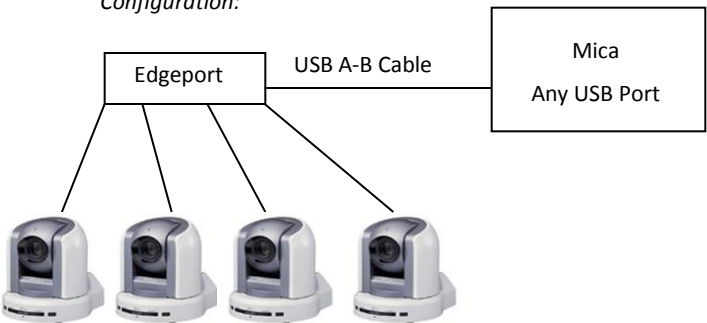


RS-422 Pinout to Connector Plug:

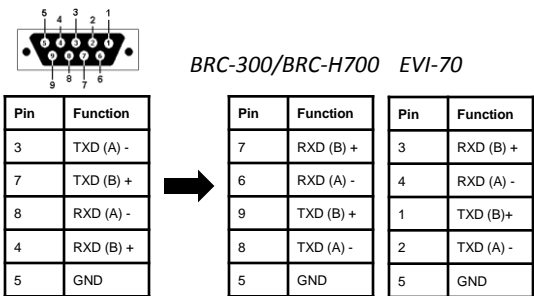


If controlling more than one camera, there is an optional 4 or 8 port Edgeport serial extender (option #814 or #818) which plugs into a USB port on the server. It provides either 4 or 8 DB 9-pin RS-422 connectors to accommodate a star configuration or a star/daisy chain configurations. This method is useful when needing to run long home run to various studios, from which you can then daisy chain. Depending on your installation needs, this may save in cable runs. See below for the wiring diagram.

Sony VISCA RS-422 Edgeport Configuration:



DB 9-Pin Serial Cable Pinout:



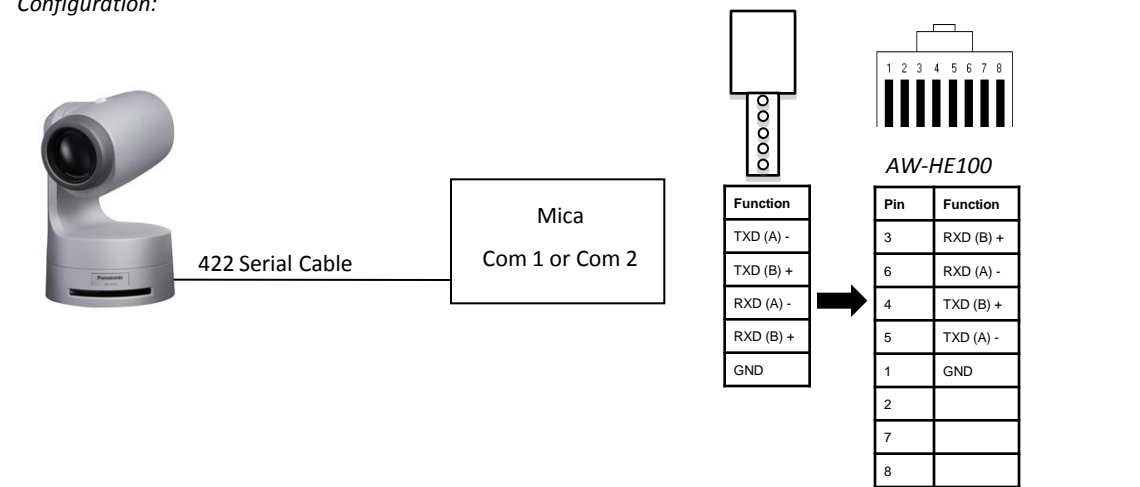
Panasonic Camera Control Option #802 (RS-422)

The Broadcast Pix system can control a wide-range of Panasonic cameras, including the AW-HE100, AW-PH400 and other Panasonic pan-tilt camera control systems.

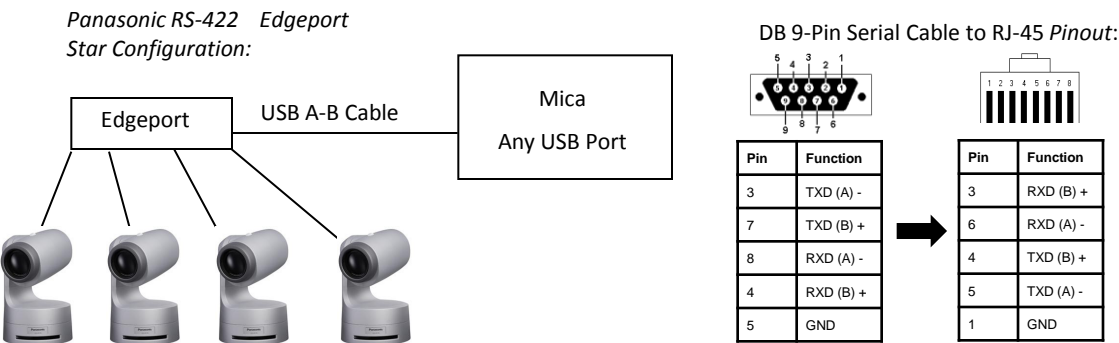
This software option can control up to 12 different robotic cameras, each of which may have up to 100 presets. Typical installations use a RS-422 configuration, which extends the maximum length to 1,200 meters (4,000 feet). All cameras are configured in a daisy chain configuration where all control cables are connected back at the Broadcast Pix server.

The single camera configuration, (option # 811) includes a DB 9-pin RS-232 to screw terminal RS-422 converter which plugs into the server in either COM 1 or COM 2. From the screw terminal you may connect your first camera using a standard RJ-45 connector, which Plugs directly into the camera. You may connect up to 2 convertors for 2 cameras, since there are only 2 RS-232 ports on the server. See below for the wiring diagram.

Single Panasonic RS-422 Configuration:



If controlling more than one camera, there is an optional 4 or 8 port Edgeport serial extender (option #814 or #818) which plugs into a USB port on the server. It provides either 4 or 8 DB 9-pin RS-422 connectors to accommodate a star configuration. See below for the wiring diagram.



Other Options

Mica Switcher Options

#126 – Keys 4/5/6: (Standard on the Mica 2000) Increases the standard 3 keyers to 6 keyers, each with a DVE. Keys 4, 5 and 6 can not be transitioned in the Mix/Effect section. This option is typically used for ‘set and forget’ graphics, such as a logo or game clock.

#140: Additional Advanced Keyers: Increases the standard 1 Chromakey and Luminance key to 8. Chromakeys are source-based allowing for up to 8 different parameters, useful for creating a virtual set.

#131 Analog In: External converter from Analog composite, Y/C, YUV, to SD SDI (Ensemble Designs BE2)

#132 Analog Out: External converter from SD SDI to Analog composite, Y/C and YUV (Ensemble Designs BE11)

#133 Analog Out: External converter from HD SDI to Analog composite and SD SDI (Ensemble Designs BE92-M)

Up to 6 converters fit in 1RU with rack kit option available from Ensemble Designs.



#240 Rack Rails: Sliding rack rails for the standard server, included in the Premium Server.

#262 Locking HDMI cable for DVI outputs - 2 meters:

Standard HDMI cables may be used, but these optional ones enable the cable to be locked in the Mica Switcher for a secure connection. Depress a button on the connector to unlock. The other end of the locking connector is HDMI.



#266 Locking HDMI cable for DVI outputs - 6 meters

See description above.

Control Panel Options

#100 / #103: SoftPanel Licenses: Increase the 3 licenses that come with a Mica, with packs of 1 or 3. Useful when adding SoftPanels, iPixPads and iPixPanels for remote users. Every control panel, SoftPanel, iPhone, iPod or iPad uses 1 license each.

#31: 3 Axis joystick for the 500 Panel : Upgrades 500 panel to from a 2 axis to 3 axis joystick for X/Y/Z control

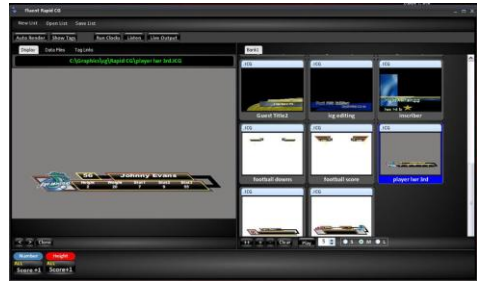
#201 Redundant Power for 1000 or 500 Panel: with this option, a second external redundant power supply is included for the 1000 or 500 control panel on the Mica 1000, 500. (standard on the 2000 panel).

Options, Continued

Mica CG Options

#161 – Additional Inscriber CG license: Add another license of the Inscriber TitleMotion GS software to any PC to share graphic creation duties across your facility, without tying up the Mica Server. This option requires an additional PC provided by the user.

#172 Fluent Rapid CG: to connects on-air CG to a database, and/or to streamline CG graphic creation. A separate datasheet is available on Fluent Rapid CG.



#162 Chyron CG: Chyron users can enjoy the familiar workflow of Chyron Lyric Pro version 8. Create powerful titles, motion graphics and 3D animations.

Other Options, Continued

Other Device Control Options (beyond those describes earlier in this Guide)

#801 Hitachi Camera Control: Control up to 9 Hitachi cameras, includes RS232->RS485 converter. The Mica control panel selects preset positions with PixButtons, and manually controls tilt, pan, zoom with its joystick. Knobs control iris and focus, and motion buttons control pedestal height. Control can be fully integrated with Broadcast Pix Fluent Macros.

#803 Telemetrics camera control: enables a Mica panel to control the line of Telemetrics robotic equipment including Pan/Tilt heads and pedestals. Use any brand of camera. The Mica control panel selects preset positions with PixButtons, and manually controls tilt, pan, zoom with its joystick. Knobs control iris and focus, and motion buttons control pedestal height. Control can be fully integrated with Broadcast Pix Fluent Macros, and with Telemetrics Studio software.

#823 External Server Control: Control a 360 Systems or Harris Nexio server through VDCP. Control up to three channels of clip stores directly from the control panel, with clip names appearing directly on the PixButtons™ of the PixPad. This option includes a 4 port Edgeport serial extender to control the server.

#824 Omneon server control: Control an Omneon server. Control up to four channels of clip stores with auto-start and looping controls, with clip names appearing directly on the PixButtons™ of the PixPad. This option includes a 4 port Edgeport serial extender to control the server.

Service Options

#601 (Americas)/#603 (International) On site Training: Day 1 First day of training

#602 (Americas)/ #604 (International) On site Training: More additional consecutive day(s)

#605 Commissioning: One day of Broadcast Pix system commissioning

#610 Rapid CG Database consulting

#640 Extend warranty: Adds an additional year of parts and labor for Mica Desktop

#641 Extend warranty: Adds an additional year of parts and labor for Mica 500

#642 Extend warranty: Adds an additional year of parts and labor for Mica 1000

#643 Extend warranty: Adds an additional year of parts and labor for Mica 2000

#680 Owner's Manual: Additional hard-copy of owners manual

Very Low System Delay

Mica systems are ideal for HD image magnification (IMAG) productions, like projection, as they have only 1 frame of delay (33 ms in NTSC and 40 ms in PAL) with gen-locked cameras, even with format conversion between 1080i, 720p and SD on inputs and on outputs, aspect ratio conversion on input and output, and video inside a picture in picture box.

In contrast, conventional switchers usually add delay to convert an input format, convert an output format, change an aspect ratio, or show video inside a picture in picture box. When several of these steps are done, conventional switchers add a lot of delay, yet Mica adds none.

The only circumstance where a Mica system adds delay is when asynchronous sources are used, such as an inexpensive camera without gen-lock, when to a frame of delay is added.

Mica Specifications

Mica Processing

Processing	HD 4-4-4 YPrPb, 10-bit 1080i
Reference Input	525 line or 625 line Black-burst or Composite video, 75 ohm BNC Or Tri-Level reference: 60 Hz syncs supported 480i29.97 (NTSC), 720p59.94, 1080i59.94 and 50 Hz syncs supported: 576i25 (PAL), 720p50, 1080i50 Or use Mica's internal sync generator (and then Ref will output black)
Standards	50 or 60Hz, switchable
Aspect Ratios	4:3 & 16:9, switchable, and each input and output may be set

HD/SD-SDI I/O

SDI Formats	Auto-Detection and setting to: 1080i/60/59.94, 720p/60/59.94, 1080i/50, 720p/50, 486i/59.94 and 576i/50
Standards	SMPTE 296M, SMPTE 274M, ITU-R BT601-5, SMPTE 259M and SMPTE 292M
Type of Connector	75 ohm BNC
Max cable length	100 meters (325ft)
Number of inputs/outputs	8 video, plus 1 key cut (there are also 7 channels of internal file inputs)

DVI-D Outputs

Formats	Set to the same as an SDI 1080i output: 1920x1080i 59.94/50
Type of connector	HDMI (optional locking cables available)
Number of outputs	2

Analog inputs and outputs are also available as options (Option #131 and 132)

Audio I/O

Format	Balanced line level analog
Type of connector	XLR
Number of outputs	2 channel Stereo (Left/Right), for clip and animation playout

Mica System Specifications

Dimensions	inches 22.5 x 19 x 7 Centimeters 100 x 42 x 14
Rack units	4 RU
Weight	44 Lbs / 20 Kg
Power	150 watts

500 Control Panel Specifications

Dimensions	15.2x9.3x4 inches / 39x24x10 centimeters
Weight	5 Lbs / 2 Kg
Power	(2) 50 watt power supply, internal (redundant)

1000 Control Panel Specifications

Dimensions	18.5x12.5x85.5inches / 47x32x14 centimeters
Weight	7 Lbs / 3 Kg
Power	(1) 50 watt power supply, external (redundant one optional)

2000 Control Panel Specifications

Dimensions	27.5x12.5x7 inches / 70x32x18 centimeters
Weight	16. 2Lbs / 7.3 Kg
Power	(2) 50 watt power supply, internal (redundant)

Contact Information

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Website:	www.broadcastpix.com
Support E-mail:	support@broadcastpix.com
Corporate Mailing Address:	Broadcast Pix 3 Federal Street Billerica, Massachusetts 01821 USA

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Western - Las Vegas, NV	1-562-480-0060

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Europe, Africa, and Middle East:

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Asia Pacific Region

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